ISIS - Bug #2224

Map projection occlusion bug

2015-02-12 12:34 PM - Kenneth Edmundson

Status:	Closed		
Priority:	High		
Assignee:	Tyler Wilson		
Category:	Applications		
Target version:	FY17 Backlog		
Impact:	map projection	**Software Version:**	

Description

Incorrect pixel values are used when map projecting in an occluded region. Probably happening in general, but quite noticable when projecting highly oblique images.

The necessity to properly map project Apollo Metric oblique images prompted this ticket.

This paper discusses the problem...

http://info.asprs.org/publications/pers/2007journal/april/2007_apr_403-411.pdf

Related issues:

Related to ISIS - Bug #4142: Fix errors, address occlusion issues and improve...	**In Progress**

History

#1 - 2015-02-12 12:38 PM - Kenneth Edmundson

- File ApolloObliqueProjection_Lev1.png added

- File ApolloObliqueProjection_Lev2.png added

Attached images illustrate the problem.

In the Level 2 image, incorrect pixels are projected into the occluded area of the crater.

#3 - 2015-03-31 06:32 PM - Tammy Becker

- Status changed from New to Acknowledged

#5 - 2015-05-13 02:25 PM - Stuart Sides

- Target version changed from N/A to 3.4.10 (FY15 R3 2015-07-23 Jul)

#8 - 2015-10-09 03:17 PM - Stuart Sides

- Assignee set to Tyler Wilson

#9 - 2015-10-09 03:39 PM - Stuart Sides

- Status changed from Acknowledged to Assigned

#10 - 2015-10-09 04:47 PM - Tyler Wilson

- Status changed from Assigned to In Progress

#12 - 2016-07-12 07:59 AM - Stuart Sides

- Target version changed from 3.4.10 (FY15 R3 2015-07-23 Jul) to 3.4.13 (FY16 R3 2016-08-31 Aug)

#13 - 2016-07-13 12:51 PM - Kris Becker

- Related to Bug #4142: Fix errors, address occlusion issues and improve performance in NAIF DSK shape model implementation added

#14 - 2016-10-03 10:15 AM - Stuart Sides

- Target version changed from 3.4.13 (FY16 R3 2016-08-31 Aug) to FY17 Backlog

#15 - 2016-10-06 02:06 PM - Tyler Wilson

- File LPSC2016Abstract.pdf added

- File 2007_jan_25-36_habib.pdf added

#16 - 2016-10-11 01:38 PM - Tyler Wilson

A description of the work that has already been done on this bug can be found in the LPSC abstract attached to this ticket, as well as the README.txt file in /work/projects/isis/latest/m02224.

Future work should involve implementing a traditional zbuffer method to compare with the current method. I have been working with the XForm functions in the cam2map class. Implementations of the zbuffer method might involve looking at higher level classes (such as Projection/TProjection).

The second attached paper by Habib, et al. also has an excellent overview of this problem, as well as a good description of the zbuffer method and I recommend it to anyone pursuing future research on this issue.

#17 - 2016-10-11 02:00 PM - Tyler Wilson

- Status changed from In Progress to Resolved

#18 - 2016-10-14 04:06 PM - Tyler Wilson

- Status changed from Resolved to Closed

Files

ApolloObliqueProjection_Lev1.png	107 KB	2015-02-12	Kenneth Edmundson
ApolloObliqueProjection_Lev2.png	164 KB	2015-02-12	Kenneth Edmundson
LPSC2016Abstract.pdf	268 KB	2016-10-06	Tyler Wilson
2007_jan_25-36_habib.pdf	696 KB	2016-10-06	Tyler Wilson